FARM INDEX

U. S. Department of Agriculture
July 1978

The Foreign Connection: Exports

Outlook

The tables have been turned in the beef game. After years of relative stability, prices to consumers are shooting up. After years of financial losses, cattlemen have a chance to get back in the black.

What happened was that money problems and droughts prompted producers to step up marketings. Bigger supplies kept the lid on retail prices. But continued herd liquidation also meant a smaller calf crop, hence, less beef for future marketings and rising prices at the supermarket.

July forecast. Look for Choice beef cuts at retail to climb nearly a fifth for the year as a whole. Though the increase might slow a bit as the year wears on, prices will remain well above 1977's. Choice steer prices farmers get will strengthen even more, in the range of 25 to 30 percent over last year.

The price surge won't end when the clock runs out on 1978. Economists figure beef output could drop for the next 2 or 3 years as producers withhold heifers from market in an effort to rebuild herds.

Pork and broiler production is on the rebound, but that moderating impact on prices will not offset the jump in the beef tab at the red meat counter. Neither, say the economists, will the administration's letting in more beef imports have much impact.

Farm prices gaining. Outlook is improving. Earlier this year, economists foresaw fairly steady farm prices. But that was before the sharp cutback in expected pork supplies and beef production.

Citrus output has dropped, too, as have supplies of some fresh vegetables. Grain and soybean prices have also advanced faster than anticipated due to strong foreign demand and domestic policy actions favoring farmers.

All in all, the value of foods originating on U.S. farms gained 6 to 7 percent in the second quarter of 1978 from the first quarter, and around 15 percent over a year ago.

Imports' share. Compared with 1977, imported foods and fish will make up a smaller portion of this year's spurt in retail food prices (forecast 8 to 10 percent in June). Imported items will come in for less than a tenth of the 1978 food price rise, in contrast to about two-third's last year.

One reason is a sharp slowdown in the pace of price advance for imports—this year estimated at only 4 to 5 percent versus upwards of 30 in 1977.

We're eating less. Per capita food consumption in the U.S. in 1978 will slip, thanks to reduced supplies and lower use of animal products. The latest estimate puts the consumption index 1.2 percent below 1976's record. Both animal products and crops show declines from 2 years ago.

The index of red meat will lead the way, off 4 percent from 1977, mainly due to a cutback in beef. Some other forecasts: poultry, up 5 percent; eggs and dairy products, slightly higher; fruits, down 3 percent; vegetables, up 2 to 5 percent.

Outlook '79. It's still months away, but now's the time to plan on attending. The 1979 Food and Agricultural Outlook Conference is set for Nov. 13-16 at USDA, Wash., D.C. It's open to the public, and there's no charge for admission.

You'll get the latest thinking on the U.S. agricultural and general economies, weather, retail food supplies and prices, farm policy, and much more. Also, special sessions on natural resources, the environment, and home economics.

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The Foreign Connection: Exports

This is the first of a two-part series on U.S.-foreign agricultural trade. Part II will examine American farm imports.

U.S. farmers are keeping a close eye on some of their best clients—foreign countries. And it's no wonder.

In 1977, the output of 1 out of every 3 harvested acres in this country was sent abroad, compared with 1 out of every 5 acres a decade ago. (Unless otherwise stated, all years referred to in this article and the accompanying story on destinations are fiscal, which end June or September 30; the fiscal year was changed to October-September in 1977.)

By the same token, U.S. agricultural exports totaled $24 billion last year, an all-time high which was more than 3 ½ times the average value of 10 years ago.

From 1972 to 1977, the value of agricultural exports increased an awesome 198 percent, while the previous 5-year period—1967 to 1972—experienced a moderate value gain of only 18 percent. (When adjusted by the index of wholesale prices of farm products, the value gains were lowered to 2 percent for the 1967-72 period, and 80 percent for the next 5 years.)

The big three. Three principal commodity groups—grains and preparations, oilseeds and products, and animals and products—were largely responsible for the gains in farm export values, especially since 1972.

From 1972 to 1977, for example, increases in exports of these three groups accounted for about four-fifths of the total value gain. In 1977 alone, they represented more than three-fourths of the farm export value.

Grains and preparations—the Nation's most valuable agricultural export—experienced the biggest gain in export value during the 1972-77 period ($6.4 billion).

In 1973, wheat exports were almost double their volume of the previous year, while feed grains were two-thirds greater. The reasons: reduced harvests in the Soviet Union and elsewhere, lower fishmeal production in Peru, increased demand for farm products resulting from higher incomes abroad, and an improved U.S. competitive position aided by the 1971 and 1973 realignments of currencies.

Second largest value gain. Oilseeds and products realized the second largest gain in export value since 1972—$4.3 billion.

Even with substantial volume declines in 1973 and 1975, oilseed exports remained high in quantity and nearly regained their 1972 volume peak in 1976 and 1977.

Reasons for the recent recovery were larger shipments of soybean and cottonseed oil, sunflower seeds, and peanuts.

The third major commodity group, animals and products, accounted for the third largest increase in export value during 1972-77—$1.6 billion.

In 1972, the export volume of this group (especially hides and skins, fats, oils, greases, dairy products, meats, and poultry) shot up, due to drought-caused production declines of New Zealand dairy products, lowered export supplies of Argentine hides and skins (caused by reduced cattle slaughter), and increased foreign demand for meats.

Rebounding exports. Despite a volume decline in 1973 (reflecting lower U.S. exports of such items as butter, nonfat dry milk, and fats and oils), exports of animals and products (except butter) rebounded, reaching a value level of $2.6 billion in 1977, up from $1.4 billion in 1973.

Besides the big three commodity groups, several other major agricultural exports showed gains in the past few years, including fruits and vegetables, tobacco, and cotton.

Exports of fruits and vegetables experienced a pronounced value gain between 1972 and 1977—$163 million. Volume increases occurred for canned fruits and preparations, fruit juices, canned vegetables, fresh beans and onions, and frozen and dehydrated vegetables.

Tobacco exports up. Tobacco exports showed a slightly rising trend during the recent 5-year period, despite the increased competition the U.S. commodity received from a number of developing countries and the European Community (EC).

As for cotton, U.S. exports experienced a highly variable, but moderately upward trend since 1972.

Large volume cotton exports in 1974 (which benefited from increased shipments to the People's Republic of China and other Far East countries) were followed by sharp declines in 1975 and 1976.

Last year's cotton exports of 941,000 metric tons showed a recovery from the previous year—indicating that the foreign textile industry was on the rebound.

Contributing factors. A number of developments have contributed to the recent increase in U.S. agricultural exports: expanding foreign population and incomes, exchange rate adjustments, unfavorable weather and reduced production abroad, available domestic supplies, and the upgrading of diets by consumers.

Among those diverse factors, the growing affluence of foreign countries is one of the more important. This can be illustrated by two principal U.S. outlets—Japan and West Germany. Rising incomes in these countries resulted in an increased market for American farm goods.

And what about the future—will the recent rising value trend of U.S. agricultural exports continue or level off?

USDA Forecast. A look at the latest (May 18) *Outlook for U.S. Agricultural Exports* indicates that the 1978 value of American farm shipments may top last year's record $24 billion by $1-2 billion.

The export price index (1967=100) for this year is expected to drop only 5 percent below 1977's 213. Wheat, soybean, rice, and cotton prices have all strengthened in recent months.

The volume of farm exports has also improved slightly since the earlier USDA forecast (February 16) and is now predicted to reach a record of over 112 million tons in 1978, up from 102 million the year before.

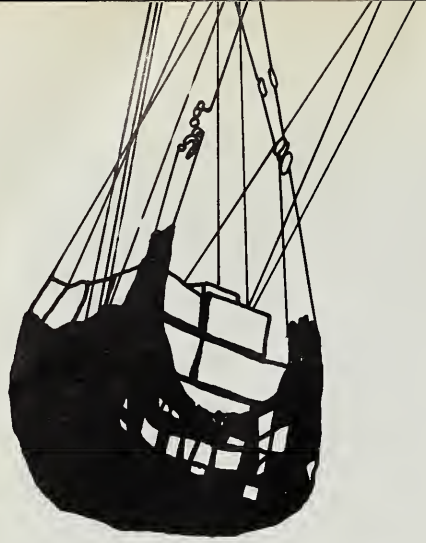
Much of this gain can be credited to wheat exports, which are projected to rebound strongly this year, expanding by more than a fourth in tonnage above 1977's level. A substantial increase is seen for soybeans, too.

Possible record for soybeans. Drought caused the first dropoff in the Brazilian soybean crop in a decade, and the impact on world and U.S. markets has been substantial. American exports of soybeans and meal are likely to reach a record volume in 1978—perhaps nearly a fifth more than the year before.

Volume increases are also expected for vegetable oils, oilcake and meal, and cotton. Feed grains, tobacco, and fresh fruits may be up slightly in volume from 1977, while animal fats will likely decline.

The value of U.S. agricultural exports to Western Europe, Japan, and Canada is expected to decline in 1978, while value increases are predicted for most other regions, especially the U.S.S.R., Eastern Europe, the People's Republic of China, and Southeast and East Asia.

[Based on the article, "U.S. Agricultural Exports: Short-Term Trends," in April 1978 issue of *FATUS*, by Robert L. Tontz, Foreign Demand and Competition Division, and the May 18, 1978, *Outlook for U.S. Agricultural Exports.*]



Major Destinations of U.S. Farm Exports

With a fifth of all U.S. agricultural output going abroad, the dependence of American farmers on the foreign market has become an established fact. But just where does the abundance of U.S. farms go?

Major destinations of U.S. agricultural exports include:

Europe. European countries provided a market for over $10 billion worth of American farm shipments in 1977—more than two-fifths of total U.S. agricultural exports.

The area helped buoy the export value gain of U.S. oilseeds, feed grains, animals and products, wheat and products, and other commodities between 1972 and 1977—the period of greatest value growth during the past decade.

The European Community (EC) is the mainstay of the European market, taking over two-thirds of the U.S. farm exports to Europe in 1977. American sales of agricultural products to the EC (France, Belgium, Luxembourg, Italy, the Netherlands, West Germany, Denmark, Ireland, and the United Kingdom) would probably be even greater if it weren't for the trade restrictions imposed on the U.S. and other nonmember countries by the EC's Common Agricultural Policy, begun in 1962.

Nevertheless, with economic growth and higher levels of living, the EC will likely continue to be a large and expanding market for U.S. farm products, especially feed grains and oilseeds and products.

Eastern Europe and the remainder of the Western European countries almost evenly divided (ignoring transshipments) the rest of the U.S. farm exports to Europe in 1977, with each representing about 16 percent of the total.

The Soviet Union was by far the leading U.S. market in Eastern Europe last year (taking more than three-fifths of the total exports), despite the fact that exports to the U.S.S.R. were down about 40 percent from 1976.

The reason for the decline: a reduction in U.S. feed grain shipments due to improved Soviet grain crops in calendar year 1976, which were much better than the disastrous harvest of the year before.

Asia. American farm shipments to Asia totaled slightly more than $8 billion in 1977, about one-third of the U.S. agricultural export total.

Japan took nearly half of the farm exports sent to Asia in that year (for a total of $3.8 billion), making the country not only the primary Asian market for American farm goods, but the most important foreign outlet in the world.

The principal farm goods shipped to Japan last year were feed grains, wheat, soybeans, and cotton, which accounted for more than 70 percent of the value of all U.S. agricultural exports sent to that country.

Large imports of feed grains and soybeans are necessary to satisfy the sizable feed demands of the Japanese livestock industry, especially swine and poultry.

Although Japan has been one of the major growth markets for U.S. farm exports in recent years—the value of exports to that country went from less than $0.9 billion in 1967 to $3.8 billion last year—there are still certain impediments to reaching the Japanese market. These include the continuation of residual quotas under the General Agreement on Tariffs and Trade; the use by the Japanese of state trading practices, import quotas on beef and veal, and tariffs on poultry and pork; and their interpretation and application of certain health and sanitary restrictions.

Besides Japan, other leading Asian markets in 1977 were the Republic of Korea, the Republic of China (Taiwan), Iran, India, and Israel. U.S. farm exports to the People's Republic of China in that year—valued at $1 million—were significantly below their 1974 peak of $0.8 billion.

Other world regions. North America (Canada), Africa, South America, Oceania, and Mexico, Central America, and the Caribbean were five additional growth markets for U.S. agricultural exports during the past few years. In 1977, they took about a fourth of all farm shipments sent abroad.

Of these regions, Canada was by far the most important country outlet. Last year, our northern neighbor was the destination for nearly a third of all U.S. exports of fruits and vegetables. They also took a good portion of our exports of animal products, oilseeds, and cotton.

Oil exporting countries. Located in several world regions, the oil exporting countries represent a new and growing market for American farm shipments.

The members of the Organization of Petroleum Exporting Countries (OPEC—Iran, Iraq, Kuwait, Saudi Arabia, Qatar, United Arab Emirates, Algeria, Libya, Nigeria, Gabon,

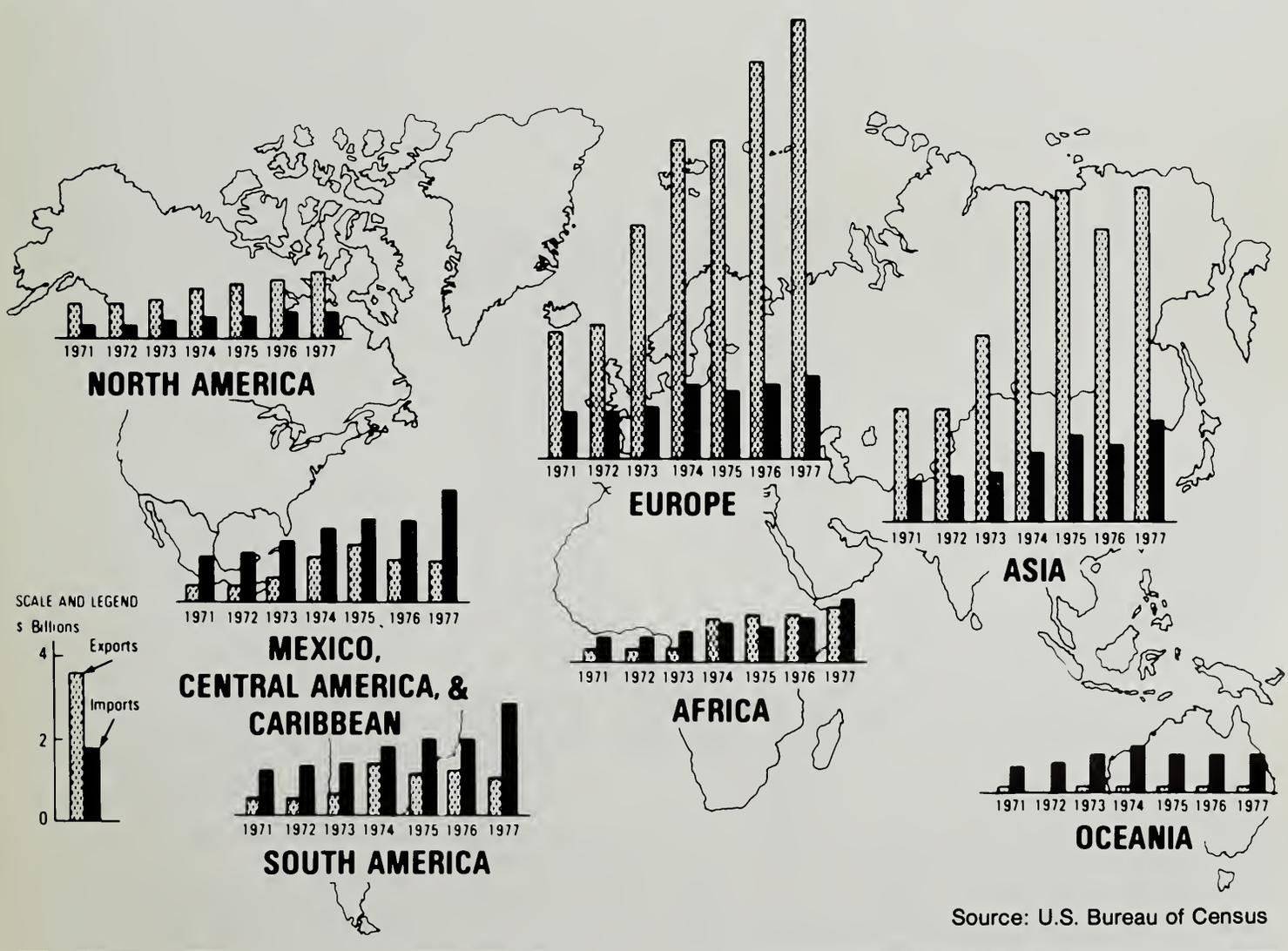
Venezuela, Ecuador, and Indonesia) took approximately $1.6 billion worth of U.S. agricultural exports in 1977—nearly 2.8 times more than in 1972. Major exports were grains (mostly wheat) and oilseeds and products.

By the same token, the value of farm shipments to the non-OPEC oil exporters (Mexico, Norway, Trinidad, Syria, Angola, Oman, and Brunei) in 1977 was 2.6 times greater than 5 years earlier.

Last year's exports to these countries totaled $0.8 billion and were made up mainly of feed grains, oilseeds, hides, tallow, cattle, meat, and vegetables.

[Based on the same *FATUS* article by Robert L. Tontz.]

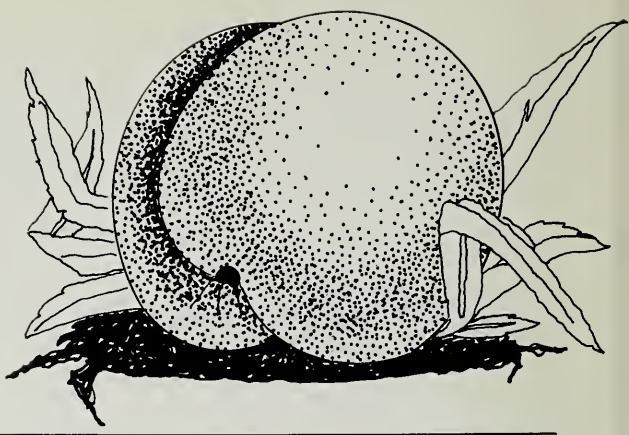
U.S. Foreign Agricultural Trade
Fiscal Years Ending June 30



Source: U.S. Bureau of Census

Commodity Profile:

Saga of a Fuzzy Fruit



From 32 States and maybe 16,000 farms come America's rosy, fuzz-covered fruits—peaches for fresh market and processing.

Peaches last year were No. 4 on the value-of-production list of major fruits. American farms produced $282.2 million worth of peaches, when nearly 3 billion pounds of clingstone and freestone varieties were harvested, and 2.9 billion pounds were used.

While commercial peach production occurs in nearly every part of the Nation, the bulk of the groves are in California and a few Southern States. Nearly all of last year's 1.4 billion pounds of clingstones, for example, came from California, along with about a third of the freestone crop.

The production leaders. California's leadership in the peach industry stems from its climate. The warm temperatures for most of the year, plus well-irrigated groves, allow a peach season that runs from light harvesting in early May, through early October. The peak takes in almost the whole summer, from late June to early September.

Most other States with commercial peach production, even those in the deep South, have a much shorter season. In Georgia, for example, where 7 percent of the Nation's peaches (13 percent of the freestones) were produced in 1976, light harvesting starts in the latter part of May and ends in early August. The Georgia peak harvest is barely a month long most years, from mid-June to mid-July.

Short northern season. Pennsylvania commercial peach production starts with light harvesting in late July. The picking is heaviest from mid-August to late September. Pennsylvania turns out 3 percent of the Nation's peaches in most years (5 percent of the freestone crop in 1976).

Production varies widely from State to State, mostly because of climate, but what the industry watches is the California harvest of both clingstones and freestones.

The differences between the types are important to consumers. With literally hundreds of varieties of peaches, the factor that becomes identifiable to most people is whether the pit—or stone—separates easily from the flesh, as with the freestones, or sticks to the flesh, as with the clingstones. The difference determines, in most cases, whether the peach is used for processing or sold on the fresh market.

Different uses, different types. Most processing peaches are clingstones, and most fresh market ones are freestones.

Per capita consumption of the two types has shifted since 1950. We ate about 9.7 pounds of fresh peaches (average) in 1950-54, but the total tumbled.

By 1970, fresh consumption had fallen to 5.7 pounds per capita, and in 1976—the most recent data available—we ate 5.2 pounds of fresh peaches apiece. That was up considerably from the low of 4.1 in 1972.

The strengthening of per capita consumption since the early 1970's lends credence to the idea that peach pop-

COMMODITY PROFILE: PEACHES

Production:	62.3 million bushels last year, down slightly from 1976
Value:	$282.2 million (value of utilized production) in 1977, up from $254.2 million in 1976
Leading States:	California is the leading producer, by far, followed by South Carolina and New Jersey.
Consumption:	Per capita consumption in 1976 was 5.0 pounds of canned peaches and 5.2 pounds of fresh.
Trends:	Per capita consumption may be on the rise from current low levels. Supplies and prices in the next year or so will tell the story.

ularity might be on the rise. Some economists say the plummeting per capita consumption has bottomed out.

Interest perks up. Matching the reawakening of the country's interest in peaches is new production from freestone trees planted in the late 1960's. These trees are now coming into their prime bearing years, and since consumption levels tend to follow production and prices, it can be expected that fresh peach consumption will rise in the future.

Canned peach consumption, after rising rapidly in the 1900's, fell on hard times, too. By 1970, consumption had dropped to 5.9 pounds per capita, down from a high of 6.9 the year before.

Consumption was down to 5.0 pounds by 1976.

The reasons for the decreased popularity of peaches are murky. Price is one factor, certainly.

Rising costs a problem. Thanks in large part to higher transportation, labor, and production costs, prices at the farm and the grocery store soared. With some seesawing, farm prices have shot from about 4 cents a pound (national season average price) in 1959, to 9.6 cents in 1976. Last year, they brought 9.9 cents.

As for this year, canned and fresh peach supplies will probably be adequate.

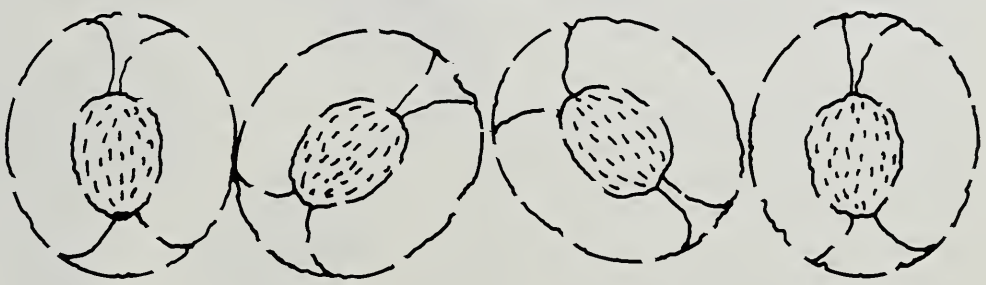
Canned clingstone stocks are down a little from the large carryover at the beginning of last season. Consumers this year may expect store prices to rise a little, mostly because producer prices are up a tad, and processing costs are significantly higher.

Most of the canned peaches will come from the California clingstone crop, and that harvest may be smaller than last year. Tighter supplies should keep canned peach prices relatively high.

The per capita consumption of peaches, both fresh and processed, will tell the story for peach growers in the next few years. And with consumption up and prices firm, the peach could be in for a juicy and delicious growth period.

[Based on special material from Jules V. Powell and Ben Huang, Commodity Economics Division.]

A Colorful Past



A basket of peaches contains—besides round, juicy, fuzzy fruit—one of the more exotic histories of American commodities.

The peach travelled in caravans and ships by way of China, Persia, and Western Europe. Scholars generally agree, now, that the peach originated in China, and was cultivated there since at least the tenth century B.C.

But for more than 2,000 years it was believed that Persia (modern-day Iran) gave birth to the peach, hence the ancient name "Persian apples."

The Roman world met the peach about 4,000 years ago. Greeks sent them to Rome, where they cost about $4.50 apiece. Spanish orchards are known to have been planted about the same time the Persian fruit was gracing the tables of the Greeks and Romans.

Later, France became a major producer, but since the 15th and 16th centuries, it's been grown commercially in England, Belgium, Holland, and Germany as well.

Queen Victoria of England paid $4 each for peaches to add an elegant touch to her finest social occasions. A peach was served in a nest of snowy cotton wool as dessert for the finest dinners.

The peach was among the first imported fruits to be grown in the U.S. The Spaniards, it is believed, sent the first seeds and trees to the New World with Columbus. By 1571, three types of peaches were growing in Mexico.

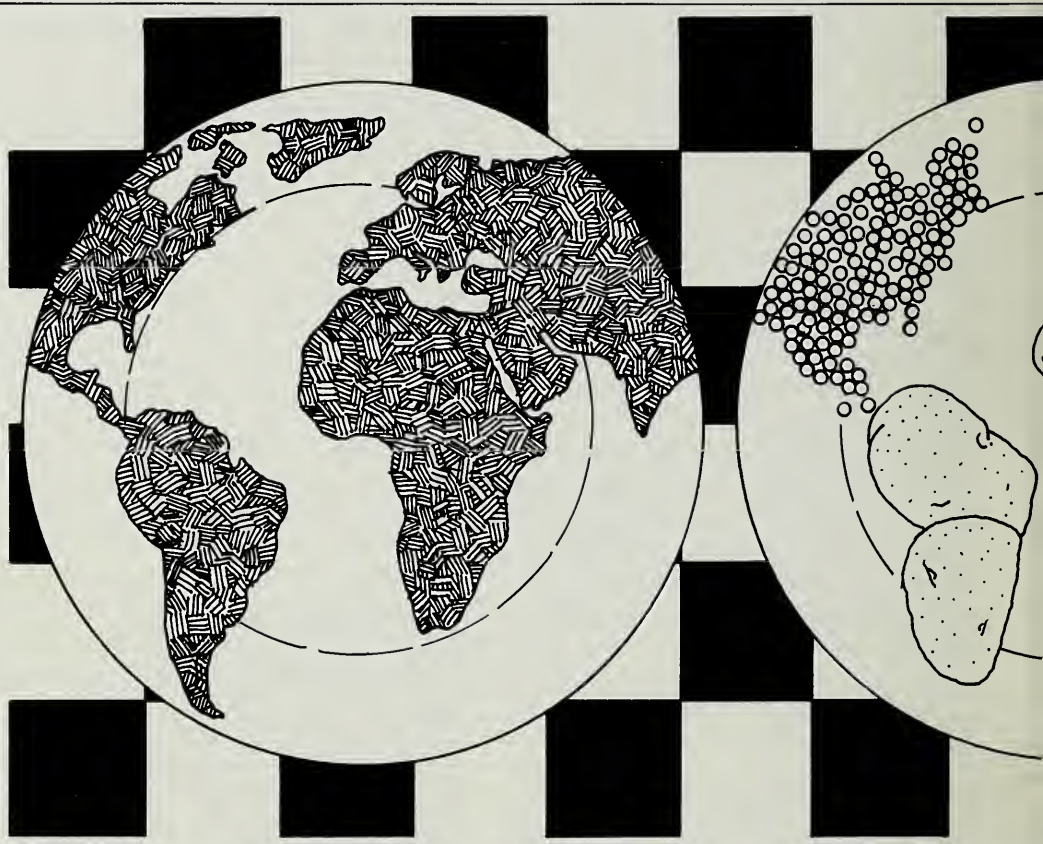
The peach spread throughout the Americas so quickly and completely that leading botanists in the middle 1700's taught that it was native to North America. Indeed, some wild peaches—from seeds that "escaped" from orchards—can still be found in South Carolina, Tennessee, and some other Southern States.

The modern peach, large and sweet compared with the small, hard, hairy fruits that grew wild centuries ago, is the result of more than a half century of research by Government and private botanists.

[Based on special material from Jules V. Powell, Commodity Economics Division.]

A Hard Look at World Hunger

Editor's Note: While 94 percent of U.S. agricultural exports are commercial, the remaining 6 percent constitute a crucial difference to millions of people in developing nations who face hunger without them. The following article takes a look at the need for such humanitarian assistance, and the prognosis for the fight against world hunger.



In Central America, a child's stomach is swollen and her eyes are dulled from malnutrition—a suffering that has afflicted her constantly since birth.

To anyone who has seen the child's picture—or that of another "third world" child—in a magazine or newspaper, the reality offers a haunting frustration.

How can America use its vast agricultural resources to feed the hungry? Why do millions remain undernourished when the quantity of food produced worldwide is sufficient to feed them?

While such questions are, indeed, appropriate, the answers are complex and perhaps not encouraging. Moreover, the answers are often clouded in misconceptions that sometimes detract from a useful examination of the hunger problem and American responsibilities.

Hunger persists. Perhaps one of the more perverse misconceptions is that today's surplus stocks have eliminated world hunger. Although estimates vary, the Food and Agriculture Organization of the United Nations estimates that 455 million people (excluding the Asian centrally planned countries) are malnourished. The World Bank estimates twice that number.

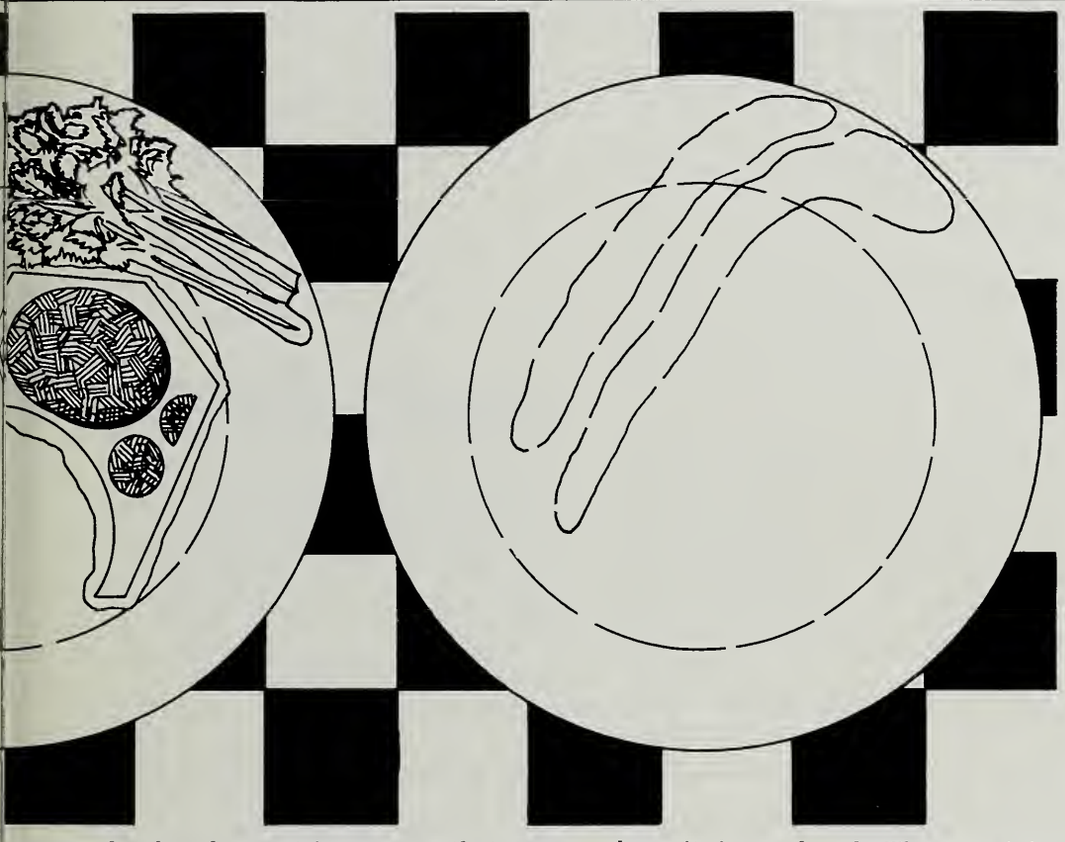
Moreover, the malnutrition is a global problem. Although it's concentrated in lower income countries, it exists as well in developed nations. The effects are most commonly borne by children, since adult breadwinners usually have first priority for any available food. Up to half of the children in less developed countries may suffer inedequate nutrition.

Sufficient food. If a perfectly equitable food distribution system could be devised, no one would suffer from malnutrition. Total world food grain supplies are more than adequate to feed the world on a per capita basis. In fact, since 1960, food grain production hasn't dropped below 103 percent of the minimum required, and is projected to continue at above-minimum levels at least through the year 2000.

Food production is actually increasing on a per capita basis in less developed countries, gaining about a half percent per person each year. Thus, today's 4 billion people have about a fifth more to eat per person than the world's 2.7 billion people a quarter of a century ago.

Money problem. Why, then, are people starving when food is plentiful on the average? The malnourished usually don't have enough money to buy food. Thus, the root of the problem may be income distribution. Better income distribution would ease food distribution.

A contributing factor to the problem is population growth. Today, 8 out of 10 babies in the world are born in less



developed countries—areas that now have 70 percent of the world population.

Coupled with a lowering death rate, these nations could gain up to 86 percent of the expected total increase in world population. This population is concentrated in the poorest areas where per capita production is lowest, thus aggravating an already critical problem.

Ultimate answer. While developed nations can help low-income nations, the ultimate answer lies in the less developed countries themselves. They must boost production, or cut population growth rate—or both—to avert disaster. All but 10 to 15 percent of the world's food is eaten in the countries where it is produced. The remaining food which is used for international aid or trade cannot by itself sate the needs of the hungry.

Rather than encourage production, many less developed nations instead followed cheap food policies that—while placating the masses for awhile—discouraged production and manipulated the market to the farmers' disadvantage. However, many nations have reversed such policies after the rude awakening of 1973-76 short supplies and high prices.

Aid forms. The form of effective aid from developed nations provides still another area of frustrating complexity. Increased international food aid—by itself—cannot solve the problem. The vast amounts of food needed are already too great to be handled by this way alone, and population growth will continue to increase that need.

To meet the minimum recommended nutritional needs of the 43 poorest countries in 1976-77 would have taken more than a 400-percent increase in grain imports. The cost of buying, transporting, storing, and distributing this grain would be more than developed nations could contribute—and far more than poorest countries could afford to buy.

All-out production. Another tempting suggestion for aid is an all-out production policy in major food exporting countries. While this could meet minimum recommended levels of nutrition around the world, experts agree that a more feasible approach is to boost production within the countries that need the food.

Fortunately, studies indicate that a relatively small percentage increase in production in the poorest nations is needed to feed their malnourished.

If only a small boost is needed in each nation, then why is the total gap so large? The sum of these small deficits grows larger, year after year. For example, if India had raised production by only 15 percent during the food-short years of 1972-74, food consumption would have reached the recommended level.

Reducing costs. Moreover, by solving the problem locally, huge costs of buying, shipping, storing, and distributing can be largely reduced.

This doesn't mean that food aid should be eliminated. It is serving a crucial role of feeding people who

wouldn't have enough to eat otherwise. Yet, food aid is a temporary measure which must be coupled with efforts to help local farmers produce more, and by enabling the poor to acquire more money with which to buy it.

Even now, food either exists in the marketplace or could be produced if the poor had enough money to buy it. This "lack of demand" may result from low per capita income, low foreign exchange rates, or from a national income distribution that leaves the lion's share of wealth with but a very few people.

Supply and demand. In countries where food consumption has grown the slowest, the problem may stem from both supply and demand. People are poor, with limited agricultural resources, poor road and market systems, out-of-date technology, and they lack all other conditions a solid agricultural system needs. Easing food and nutrition shortages in such nations will require a long-term, comprehensive effort.

Meanwhile, a system of world grain reserves—as envisioned by the U.S.—could ease some of the problems of the poor by meeting short-term emergency needs and ironing out sharp price fluctuations from year to year.

The poor are particularly vulnerable in short-supply, high-price periods, since they must cut back consumption because they can't afford to pay more for the same amount.

A bad year. Normally, year-to-year adjustments in supply are but a small portion of total production. But in 1972, a 17-percent production drop drove world grain prices up by 44 percent in the following year—an increase that the poor countries could hardly absorb.

President Jimmy Carter has established a grain reserve of up to 30-35 million tons during 1978, and proposed a Government-owned emergency grain reserve of 6 million tons as a buffer for humanitarian use in future emergencies abroad.

Besides social and economic factors that have a bearing on world hunger, technological events may also influence the situation.

"Green Revolution." The much-heralded "Green Revolution" of the past several years, which saw the development of high-yielding varieties of wheat and rice, still hasn't been fully implemented.

The spread of these varieties, which could dramatically improve crop yields in developing nations, will take hold slowly as farmers learn to use them. Also, more research is needed into local crops, conditions, and customs—factors that can inhibit adoption of the new varieties.

Another potential constraint on world production is the availability of land that can easily be brought into production.

Cropland acquisition. Capital seems to be an underlying factor in cropland acquisition, just as it affects adoption of "Green Revolution" technology. Less than half of the world's potential cropland is now in use, with much of the unused land located in some developing nations. Other lower-income nations, such as Egypt, India, and Bangladesh, have little expandable farmland, thus they must concentrate on increasing crop yields.

While some critics accuse the U.S. of neglecting the world's hungry, America's record in assisting developing nations is unmatched. Since the end of World War I, the U.S. has provided more than four-fifths of the total world food assistance.

Since the U.S. Food for Peace Program was adopted in 1954, America has provided $25 billion in world food donations and concessional sales. Over the past two decades, the U.S. has shipped food aid at the rate of 70 million pounds a day.

Struggle ahead. Yet, even with the U.S. contribution—and that of other developed nations who join in the battle against world hunger—the outlook for the coming years is for a continuing struggle.

Since the beginning of time people have managed to acquire just enough "know-how" to produce food for 4 billion people—and about half a billion of these are undernourished. Yet, at the current rate, twice as many people will be around to feed after the turn of the century.

Three major problems confront mankind's food production needs:

1. Increasing food production. The present technology can increase world food production very substantially. But both improved technology and a reduced rate of population growth must occur to meet longrun needs.

2. Stabilizing food supplies. A grain reserve can ease the problems of both over and under production some years and help stabilize prices. The U.S. Government is seeking an international agreement for such a system.

3. Boosting economic development to improve jobs, incomes, and rural development for the poorest so that they can purchase the food that is produced. Even if world grain production rises substantially, it does the poor little good if they still can't afford to buy enough to be properly fed.

[Based on the pamphlet, "Is the World Facing Starvation?", based on data supplied by the Foreign Demand and Competition Division.]

Farmworkers and the New Food Stamp Act

Hired farmworkers should have an easier time obtaining food stamps when the Food Stamp Act of 1977 goes into effect this summer.

Although farmworkers are one of the most economically disadvantaged population groups in the U.S., only a small percentage of them seek Food Stamp assistance.

The new law makes major reforms in the Food Stamp Program, simplifying program administration and making it easier for eligible people to participate.

According to an ESCS study, only 10 percent of the approximately 2 million hired farmworkers in November 1975 participated in the Food Stamp Program. Although this participation rate is almost twice as high as all U.S. families, farmworker families tend to be larger than others, which complicates the problems of low income.

Farmworker criteria. A hired farmworker family, as defined in this study, is one with a member 14 years of age or older who did hired farmwork during a year. Many hired farmworkers are low-skilled, low-paid workers with unstable working conditions caused by the seasonality and changing nature of agricultural work.

Because of this, some families seldom have the opportunity or resources to improve their lifestyle, and as a result, they are one of the few occupational groups designated to receive special assistance under Federal law.

Of all farmworkers, migrants are probably the most impoverished. A migrant farmworker is a person 14 years of age or over who leaves home for at least one night to do farmwork in a different country or State with the intention of eventually returning home.

Traveling difficulties. Although the family income and size of migratory families did not differ significantly from that of all farmworker families, increased travel costs, job insecurity, limited access to community services while traveling, and poor living conditions while in transit accentuate the problems of migratory farmworker families.

In 1975, 7 percent of U.S. hired farmworker families had at least one member who did migratory farmwork during the year. In November of that year, about 6 percent of these families received food stamps.

Based on just income an family size, all families with incomes below $5,000 and having six or more family members should be eligible for food stamps. While this group of families has the highest participation rate of any other family size and income group, only 50 percent of hired farmworker families at this size and level receive food stamps.

Many eligible farmworkers have not participated because of their lack of knowledge about the program, negative attitudes toward welfare programs, transportation problems, and lack of money to purchase stamps.

Minorities and stamps. Farmworker families who received food stamps were more likely to be Hispanic, black, or some other minority, southern residents, nonmigratory, and have an average of 5.3 members per family. Hispanics were more than three times as likely to participate than whites. Blacks and other minorities were four times as likely to receive food stamps.

The 1977 Food Stamp Act is expected to make participation easier because it eliminates the purchasing requirement, which discouraged many people from using food stamps in the past. Previously, people were required to pay for stamps, then received additional "bonus" stamps.

To simplify the program. Many low-income families couldn't afford the price. By eliminating this requirement, an estimated 3 million needy people who were eligible under the old law, but didn't buy stamps, will be participating. This will simplify program management, reducing the amount of food stamps in circulation by $3 billion and ending abuses by cash collection agencies.

The act also improves the effectiveness of Outreach Programs by requiring States to inform people, especially migrant farmworkers, about food stamps. These programs may be carried out by community action groups. Some State agencies set up temporary offices in areas where seasonal workers may be, so workers don't have to travel long distances to obtain food stamps.

[Based on the report, "Food Stamp Participation of Hired Farmworker Families," by Leslie Whitener Smith and Gene Rowe, Economic Development Division, and the article, "The New Food Stamp Legislation," in *Food and Nutrition,* October 1977, Food and Nutrition Service.]

From Waste to Resource

Yesterday's 112-million-ton environmental nightmare is undergoing an image change today.

Livestock and poultry producers are using animal residue—manure, plus straw or bedding picked up with it—as an income source. Many farmers have traditionally used residue as a fertilizer, while others have regarded it as a waste problem that's a headache to get rid of.

Environmental regulations—from Federal, State, and local governments—have pressed some of these farmers to search out new uses for it. Besides an increased interest in it for fertilizer, it's being processed for use as animal protein and used as a source of energy.

Days gone by. The days of simply dumping the residue, sometimes resulting in runoff into a creek or other water supply, are gone. Such pollution was a bur in the side of environmentalists, and robbed agriculture of a weapon in the battle for profitability. Most of these dumping practices are outlawed today.

Annual manure production in the U.S. is prodigious. A staggering 112 million tons (dry weight) was produced in 1974, according to estimates based on livestock and poultry numbers in the Census of Agriculture.

Out of that mountain, farmers could theoretically glean over 4 million tons of nitrogen fertilizer, more than a million tons of phosphorus, and about 2.4 million tons of potassium. Also in large quantities are calcium, zinc, and other nutrients.

But not all that residue is easily recoverable under present farm conditions. About half of it was produced by beef cattle on range, of which only about 4 percent could be economically collected.

Confinement is easier. For animals in confinement, the story's different. Nearly all the residue from feeder cattle and poultry is recoverable. That's an important consideration for farmers who have been plagued with high costs for fertilizer and decreasing quantities of natural gas. Animal residue has long been used as an organic fertilizer, but it also contains significant quantities of energy.

Anaerobic digestion is one process which may be used in converting the energy in animal residue into a readily usable form—methane gas. Methane can be used as a substitute for natural gas, which is used in agricultural production largely for space heating, brooding, and irrigation purposes.

If all the 112 million tons of manure produced in the U.S. in 1974 could be converted to methane, about 609 billion Btu's would result, which could help ease energy shortages. That represents about 13 percent of the total natural gas used in livestock production in 1974.

Some of them are working. Some experimental anaerobic digestors are in operation around the U.S. today. Uses for methane from these digestors are being extensively investigated. However, both technical and economic problems must be solved before digestion can be regarded as a dependable and widely used source of energy.

In addition to methane, the digestion process creates a sludge high in single-cell protein, which conserves the nutrients present in the original manure. Thus, it has potential for use as an animal feed, as well as a fertilizer. Indeed, it has been recycled as a feed ingredient in layer flock rations and in beef cow diets, for example.

Animal residue is often high in protein. This is especially true when a high-concentrate ration is fed, such as in poultry and egg production, where the residue can be from 25-35 percent protein.

Less protein from some livestock. Residue from other animals usually contains lower levels of protein and less favorable balances of amino acids.

The animals' diet plays the key role here. Roughages comprise a large portion of many of the rations of ruminant animals—such as cattle and sheep.

Ruminants convert some types of protein into meat and milk more completely, thus leaving less to accumulate in the residue.

Tests have shown that livestock and poultry can be fed rations including animal residue without hurting production. Many of these rations take a nice slice out of production costs, compared with traditional feed.

Various mixtures. Some experimenters have used a 40-percent processed residue and 60-percent conventional feed mixture with some success. The amount of residue that can replace other feed depends on the level of nutrients in the residue and the type of animal being fed. Researchers find that most mixtures are effective when manure accounts for 15-30 percent of the ration.

But it's not clear yet how often manure can be fed this way. Some experimenters indicate once through is all that will produce a feed with an acceptable amount of protein and other nutrients. Other experiments point toward using the residue numerous times. Clearly all the evidence isn't in yet.

FDA searches. Testimony is still to come as the U.S. Food and Drug Administration (FDA) continues looking at the question of using animal residue for feed. The FDA currently does not sanction its use for this purpose, although some States do.

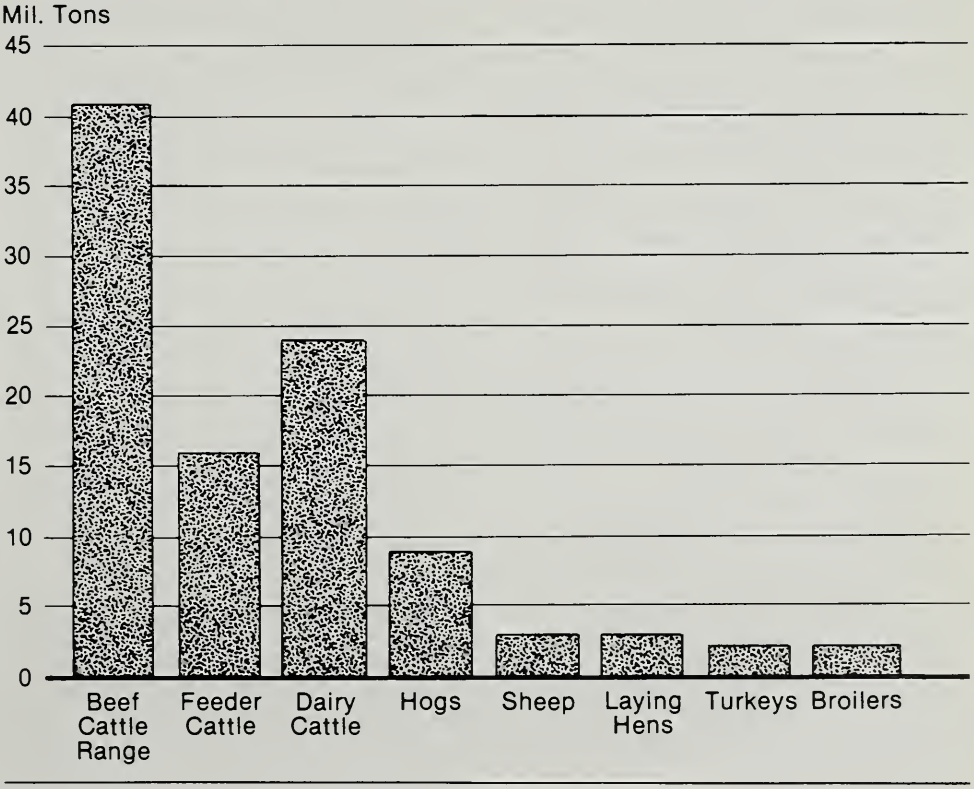
Before using residue as a feedstuff is approved, testing procedures, among other things, would set limits on the amount of heavy metals, drug residue from previous feeds, and other potentially harmful substances that could be allowed in the residue.

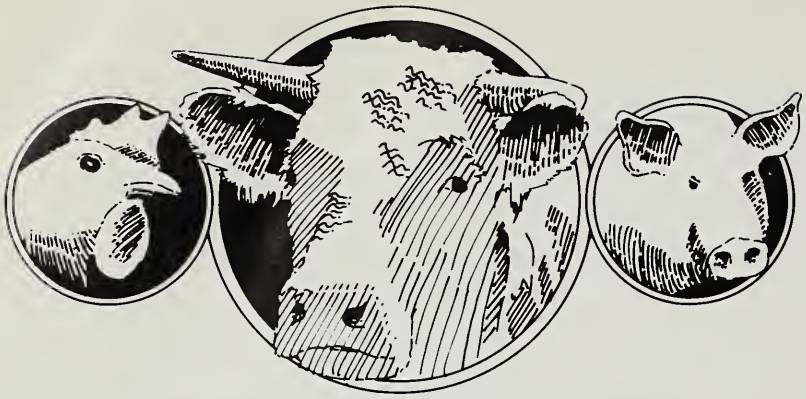
Finding new uses for manure isn't new, and some farmers and researchers have already spent rather large sums developing systems to make the fullest use of animal residue.

A South Carolina egg production corporation is investing $2.5 million in what may be the ultimate manure handling system.

Full circle. Grain for the laying flock is grown on the farm. Residue from the chickens is processed, then fed to beef cattle. The residue from the cattle is hauled to an anaerobic digester from

Animal Manure Production in the U.S., 1974





which methane will be collected while the sludge is stored.

Later, the sludge will be used to fertilize the cropland and the methane sold to a natural gas utility company.

Not all farms are adaptable to such a full-cycle system. Many farms don't have the facilities for handling and storage, and most farmers don't have access to the kind of money needed for an elaborate setup like the one in South Carolina.

A less expensive system can be found on a Nebraska hog farm. This farm, with about 4,400 hogs, must deal with about 1.1 million pounds of residue annually. The farmer figures to get methane to aid in heating, while retaining more than a half million pounds of sludge containing valuable soil nutrients.

The payback. The farmer estimates he'll get his $40,000 investment back in about 7 years. Gas will be used on the farm, and less chemical fertilizer will have to be purchased.

Costs of handling systems are likely to come down in the future with improved technology and mass production. But for the time being, the price tag can be a snag for farmers trying to use residue for methane production.

Another hangup is the complexity of the handling systems. If they require the presence of a full-time engineer, they're of little use in trying to run a farming operation.

Researchers are wrestling with other problems, too. For example, after anaerobic digestion, the sludge doesn't remain nitrogen-rich for very long.

Escaping gas. It's estimated that up to 80 percent of the nitrogen can escape to the air after the sludge is spread. No simple method for retaining the nitrogen has been found.

Another problem can be solved, but the solution remains expensive.

An estimated 11 percent of animal residue produced in the U.S. in 1974 was lost in handling and storage. Nitrogen content alone, originally estimated at over 4 million tons, dwindled to 2.6 million. More efficient storage facilities and better management techniques could reduce these nutrient losses. Frequent collection should rank at the top of the list of alternatives. And, if storage is involved, the residue should be dried as quickly as possible to minimize nutrient losses.

Solar power for drying. Many farmers in drier climates, such as California, are using solar energy to dry animal residue. The material, normally high in water content, is simply spread in the sun to dry. That's very effcient in terms of reducing fossil energy input for drying, but nutrient losses can be high.

Situations in various States are different, of course, not only because of climatic variations, but also because of different residue handling systems, plus different types and numbers of animals produced.

For example, Texas was the leader in the amount of manure voided by livestock and poultry in 1974, with 11.3 million tons; Iowa was second with 8.1 million. But when the amount of manure that's economically recoverable is figured, Iowa is the leader with 4.5 million, and Texas is second with 4.1 million.

Position shifts. The shift comes because of the type of livestock production. Iowa has large quantities in hog, feeder cattle and dairy residue production, with much of it in total or partial confinement.

Texas, on the other hand, is primarily a beef cattle-producing State, and much of the manure is voided on rangeland.

Other States with large amounts of residue are Wisconsin (dairy cattle, 2.9 million tons a year economically recoverable); Nebraska (hog and cattle feeding, 2.4 million tons); Minnesota (dairy, 1.9 million tons); and California (2.3 million tons from feeder cattle, dairy production, and laying hens).

The nitrogen in manure is potentially worth $1.6 billion a year. Currently, about $1.1 billion-worth remains after handling and storage losses. If all of the nitrogen could be recovered, it could be used to fertilize 41 million acres of cropland with 200 pounds an acre.

To cut the losses. Handling losses in the future may be reduced by altering residue management practices. More livestock producers than ever are raising their animals in total or partial confinement. That makes residue collection easier and faster, and provides more control over nutrient conservation.

Researchers are confident they're making headway against the problems. And they'll be pushed by environmental regulations, total confinement, and the pressing need for both new energy sources and revenue generating by-products which will help pay for new and expensive residue handling systems.

With all that help, farmers in the 21st century, when they check commodity prices, just might scan the "Animal Residue Sales," because the stuff that used to be called "waste" is now a resource.

[Based on *Estimating U.S. Livestock and Poultry Manure and Nutrient Production* (ESCS-12), by Donald L. Van Dyne, Commodity Economics Division, and Conrad B. Gilbertson, Science and Education Administration.]

Frozen Assets for Food Services

Both homemakers and food service operators are digging into their freezers more and more for prepared convenience foods.

Food service operators are using frozen products for many of the same reasons homemakers use them.

Rising costs of food, labor, rent, utilities, and equipment have forced these operators to seek the flexibility of more convenience food forms—whether they run luxury restaurants, college cafeterias, or fast food outlets.

And the convenience food form of the 1970's is frozen products.

A 1976 USDA report indicated that the vast majority of new convenience foods introduced over a recent 5-year period were frozen. The same report projected that during the next few years frozen products will continue to dominate new convenience food introductions.

Frozen food domain. Already, frozen products hold a substantial share of the action.

According to one industry survey, 15 percent of the Nation's commercial food service operations and 13 percent of institutional operations use convenience entrees regularly. In addition, another 46 percent of commercial and 69 percent of institutional food service operations occasionally use frozen entrees.

Heaviest regular users are hospitals and fast-food operations, with full-service restaurants and schools as the most infrequent users.

The frozen foods growth is occurring in an industry that's only a half-century old.

Clarence Birdseye experimented with food freezing in the 1920's, and established the first commercial frozen food company in New York in 1930.

Birdseye later noted modestly: "My contribution was to take Eskimo knowledge and the scientists' theories, and adapt them to quantity production."

Concept catches on. Whatever the secret of his success, Birdseye's concept of freezing foods has caught on in grand fashion. Industry experts see an average growth rate of 4 percent annually to a total frozen food poundage of 22 billion by 1980.

That's for all frozen foods. The rate of growth for frozen convenience foods sould run 5.5 percent to a 1980 total of nearly 6 billion pounds. Only a decade ago, total poundage of all frozen foods was just over 14 billion pounds, of which 3 billion pounds were convenience foods.

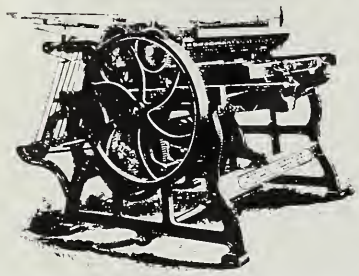
Much of the growth in frozen food popularity occurred from 1962 to 1968, when the annual growth rate for all frozen foods topped 7 percent, led by an 18-percent growth rate in convenience foods. The rate slowed from 1968 to 1974, but it's now picking up steam again.

Increased use. One reason for the continued growth is that frozen convenience foods should become even more important to food service operators in coming years. A nongovernment survey showed many operators who service institutions plan to increase use of frozen products.

Many frozen convenience foods are already in use at most institutions. Most popular frozen entrees in institutional food services are fish and seafood entrees, with almost 9 out of 10 school and college food services serving them now, along with 8 out of 10 hospitals, and three-fourths of all nursing homes surveyed. Frozen French fried potatoes are even more popular, with almost all schools and colleges serving them, along with most hospitals and nursing homes.

[Based on special material by Hal Linstrom, National Economic Analysis Division.]

Recent Publications



Single copies of the publications listed here are available free from *Farm Index*, Economics, Statistics, and Cooperatives Service, Rm. 300 GHI, 500 12th St. S.W., U.S. Department of Agriculture, Washington, D.C. 20250. However, publications indicated by (*) may be obtained only by writing to the experiment station or university. For addresses, see July and December issues of *Farm Index*.

Retail Meat Prices in Perspective. James E. Nix, Commodity Economics Division. ESCS-23.

The reduction of the cattle herd that was wrought by drought and heavy financial losses to producers during most of the past 4 years should come to a halt now that beef prices are rising. And, this author says, just when prices are beginning to signal producers to begin rebuilding their herds, proposals are being made to limit producer profits. If herd reduction doesn't stop soon, the annual per capita consumption of beef during 1 of the next 3 years could drop to the lowest point in the past decade.

Eastern Europe Agricultural Situation, Review of 1977 and Outlook for 1978. Centrally Planned Countries Programs Area, Foreign Demand and Competition Division. Supplement 3 to WAS-15.

Agricultural production in Eastern Europe last year was about the same overall as 1976. U.S. agricultural exports slipped last year, but they'll probably recover in 1978.

Addresses of State experiment stations:

A ready reference list for readers wishing to order publications and source material published through State experiment stations.

STATE	CITY	ZIP CODE			
ALABAMA	Auburn	36830	MISSISSIPPI	Mississippi State	39762
ALASKA	Fairbanks	99701	MISSOURI	Columbia	65201
ARIZONA	Tuscon	85721	MONTANA	Bozeman	59717
ARKANSAS	Fayetteville	72701	NEBRASKA	Lincoln	68583
CALIFORNIA	Berkeley	94720	NEVADA	Reno	89557
	Davis	95616	NEW HAMPSHIRE	Durham	03824
	Parlier	93648	NEW JERSEY	New Brunswick	08903
	Riverside	92502	NEW MEXICO	Las Cruces	88003
COLORADO	Fort Collins	80523	NEW YORK	Ithaca	14853
CONNECTICUT	New Haven	06504		Geneva	14456
	Storrs	06268	NORTH CAROLINA	Raleigh	27607
DELAWARE	Newark	19711	NORTH DAKOTA	Fargo	58102
DISTRICT OF COLUMBIA	Washington	20008	OHIO	Columbus	43210
FLORIDA	Gainesville	32611		Wooster	44691
GEORGIA	Athens	30602	OKLAHOMA	Stillwater	74074
	Experiment	30212	OREGON	Corvallis	97331
	Tifton	31794	PENNSYLVANIA	University Park	16802
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HAWAII	Honolulu	96822	RHODE ISLAND	Kingston	02881
IDAHO	Moscow	83843	SOUTH CAROLINA	Clemson	29631
ILLINOIS	Urbana	61801	SOUTH DAKOTA	Brookings	57006
INDIANA	West Lafayette	47907	TENNESSEE	Knoxville	37901
IOWA	Ames	50011	TEXAS	College Station	77843
KANSAS	Manhattan	66506	UTAH	Logan	84322
KENTUCKY	Lexington	40506	VERMONT	Burlington	05401
LOUISIANA	Baton Rouge	70803	VIRGINIA	Blacksburg	24061
MAINE	Orono	04473	VIRGIN ISLANDS	St. Croix	00850
MARYLAND	College Park	20742	WASHINGTON	Pullman	99163
MASSACHUSETTS	Amherst	01003	WEST VIRGINIA	Morgantown	26506
MICHIGAN	East Lansing	48824	WISCONSIN	Madison	53706
MINNESOTA	St. Paul	55108	WYOMING	Laramie	82071

Economic Trends

Item	Unit or Base Period	1967	1977 Year	1977 April	1978 Feb.	1978 March	1978 April
Prices:							
Prices received by farmers	1967=100	—	183	191	193	200	208
Crops	1967=100	—	193	214	190	198	208
Livestock and products	1967=100	—	175	172	196	204	209
Prices paid, interest, taxes, and wage rates	1967=100	—	202	204	211	214	216
Prices paid (living and production)	1967=100	—	197	198	203	206	209
Production items	1967=100	—	200	204	206	211	214
Ratio [1]	1967=100	—	91	94	91	93	96
Producer prices, all commodities	1967=100	—	194.2	194.3	202.0	203.8	206.4
Industrial commodities	1967=100	—	195.1	193.3	202.8	204.1	206.0
Farm products	1967=100	—	192.5	208.2	198.9	205.3	213.6
Processed foods and feeds	1967=100	—	186.1	188.5	194.6	196.8	200.2
Consumer price index, all items	1967=100	—	181.5	179.6	188.3	189.8	191.3
Food	1967=100	—	192.2	190.9	201.3	203.6	205.6
Farm Food Market Basket: [2]							
Retail cost	1967=100	—	179.2	179.1	188.1	190.7	193.3
Farm value	1967=100	—	179.1	178.7	191.3	199.5	206.8
Farm-retail spread	1967=100	—	179.5	179.3	186.0	185.1	184.8
Farmers' share of retail cost	Percent	—	39	39	39	41	41
Farm Income: [3]							
Volume of farm marketings	1967=100	—	124	99	102	97	96
Cash receipts from farm marketings	Million dollars	42,817	95,025	6,788	6,976	7,236	7,100
Crops	Million dollars	18,434	47,572	2,996	2,826	2,640	2,400
Livestock and products	Million dollars	24,383	47,453	3,792	4,150	4,596	4,700
Realized gross income [4]	Billion dollars	49.9	106.1	—	—	113.4	—
Farm production expenses [4]	Billion dollars	38.2	85.7	—	—	92.1	—
Realized net income [4]	Billion dollars	11.7	20.4	—	—	21.3	—
Agricultural Trade:							
Agricultural exports	Million dollars	6,380	23,671	2,209	2,068	2,519	2,508
Agricultural imports	Million dollars	4,452	13,459	1,402	1,222	1,394	1,309
Land Values:							
Average value per acre	Dollars	[6] 168	[7] 450	—	490	—	—
Total value of farm real estate	Billion dollars	[6] 189	[7] 482	—	524	—	—
Gross National Product: [4]	Billion dollars	796.3	1,889.6	—	—	1,993.4	—
Consumption	Billion dollars	490.4	1,211.2	—	—	1,281.9	—
Investment	Billion dollars	120.8	294.2	—	—	319.5	—
Government expenditures	Billion dollars	180.2	395.0	—	—	416.6	—
Net exports	Billion dollars	4.9	-10.9	—	—	-24.6	—
Income and Spending: [5]							
Personal income, annual rate	Billion dollars	626.6	1,536.7	1,510.1	1,634.5	1,656.8	1,680.1
Total retail sales, monthly rate	Billion dollars	24.4	58.9	58.1	61.7	62.3	63.6
Retail sales of food group, monthly rate	Billion dollars	5.8	13.0	12.9	13.9	13.9	14.2
Employment and Wages: [5]							
Total civilian employment	Millions	74.4	90.5	89.9	93.0	93.3	93.8
Agricultural	Millions	3.8	3.2	3.3	3.2	3.3	3.3
Rate of unemployment	Percent	3.8	7.0	7.1	6.1	6.2	6.0
Workweek in manufacturing	Hours	40.6	40.3	40.3	39.9	40.5	40.5
Hourly earnings in manufacturing, unadjusted	Dollars	2.83	5.63	5.52	5.94	5.96	5.99
Industrial Production: [5]	1967=100	—	137.1	136.1	139.2	141.0	142.5
Manufacturers' Shipments and Inventories: [5]							
Total shipments, monthly rate	Million dollars	46,487	111,256	109,521	119,131	121,273	124,667
Total inventories, book value end of month	Million dollars	84,527	179,714	174,015	182,393	183,860	185,418
Total new orders, monthly rate	Million dollars	47,062	112,842	—	122,693	125,973	128,267

[1] Ratio of index of prices received by farmers to index of prices paid, interest, taxes, and farm wage rates. [2] Average annual quantities of farm food products purchased by urban wage earner and clericalworker households (including those of single workers living alone) in 1959-61—estimated monthly. [3] Annual and quarterly data are on 50-State basis. [4] Annual rates seasonally adjusted first quarter. [5] Seasonally adjusted. [6] As of March 1, 1967. [7] As of February 1, 1977.

Source: U.S. Dept. of Agriculture (Agricultural Prices, Foreign Agricultural Trade, and Farm Real Estate Market Developments); U.S. Dept. of Commerce (Current Industrial Reports, Business News Reports, Monthly Retail Trade Report, and Survey of Current Business); and U.S. Dept. of Labor (The Labor Force and Wholesale and Consumer Price Index).

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